

## WHAT IS CLAIMED IS

1. A motor driving type throttle apparatus characterized by comprising a throttle body integrally formed with a throttle valve housing and a throttle actuator housing;

5        wherein a power transmission apparatus for transmitting an output of the throttle actuator to the throttle valve is integrated to said throttle body;

         wherein an electronic control module for controlling said throttle valve is contained in a module housing or mounted on  
10       a board; and

         wherein said throttle actuator and said power transmission apparatus are arranged to be protected by a single cover,

         and said cover and said module housing or said board are  
15       integrally formed.

2. A motor driving type throttle apparatus characterized by comprising a throttle body integrally molded with a throttle valve housing and a throttle actuator housing;

         wherein a power transmission apparatus for transmitting  
20       an output of the throttle actuator to the throttle valve is integrated to said throttle body;

         wherein an electronic control module for controlling said throttle valve is contained in a module housing or mounted on a board;

wherein said throttle actuator and said power transmission apparatus are protected by a cover; and

wherein conductors constituting electric wirings at an inner portion of a molded member forming the cover are embedded by a resin mold, and portions of said conductors are exposed to a surface of said molded member to thereby electrically connect said conductors and said electronic control module.

3. The motor driving type throttle apparatus according to Claim 2, wherein a throttle position sensor for detecting an opening degree of said throttle valve is contained in the cover, and terminals of said throttle position sensor are connected to said conductors.

4. The motor driving type throttle apparatus according to Claim 2, wherein terminals of said throttle actuator are connected to the conductors.

5. The motor driving type throttle apparatus according to Claim 2, further comprising intermediary terminals for connecting the throttle actuator with said conductors, wherein an intermediary terminal housing for containing said intermediary terminals and said cover are integrally molded.

6. The motor driving type throttle apparatus according to Claim 2, wherein intervals between the terminals of said throttle position sensor and said conductors, and intervals between said conductors and said electronic control module are

connected by wire bonding or welding.

7. A motor driving type throttle apparatus characterized by comprising a throttle body integrally formed with a throttle valve housing and a throttle actuator housing;

5        wherein a power transmission apparatus for transmitting an output of the throttle actuator to the throttle valve is integrated to said throttle body;

10        wherein a cover for protecting said throttle actuator and said power transmission apparatus ,and a module housing for containing an electronic control module for controlling said throttle valve, and said cover and said module housing are integrally formed;

      wherein a board is bonded to the module housing, and the electronic control module is mounted to said board; and

15        wherein a air flow meter is integrated to said module housing , and said electronic control module is disposed on an upper side of said air flow meter.

20        8. The electronic type throttle apparatus according to Claim 7, wherein a difference in level is provided between said cover and said module housing, thereby said module housing is brought neat to said throttle body.

      9. A motor driving type throttle apparatus characterized by comprising a throttle body integrally formed with a throttle valve housing and a throttle valve actuator housing;

wherein a power transmission apparatus for transmitting an output of the throttle actuator to the throttle valve is integrated to said throttle body;

5 wherein said throttle body has an electronic control module for controlling said throttle actuator ,and a air flow meter for detecting air rate flow in intake air passage;

wherein said throttle actuator and said power transmission apparatus are arranged to be protected by a single cover, further comprising :

10 said electronic control module arranged integrally with said cover and in a direction orthogonal to a housing of said air flow meter.

10. The motor driving type throttle apparatus according to Claims 9, wherein a thermometer is integrated to said  
15 electronic control module.

11. The motor driving type throttle apparatus according to Claim 9, wherein a pressure meter for detecting pressure of said intake air passage is integrated to said electronic control module.

20 12. A motor driving type throttle apparatus characterized in that a cover for covering one end of a throttle valve shaft is attached to a side wall of a throttle body having a throttle valve, and an electronic control module for controlling the throttle valve is attached to said cover.

13. A motor driving type throttle apparatus characterized in that a cover for covering one end of a throttle valve shaft is attached to a side wall of a throttle body having a throttle valve;

5        wherein an inner face of said cover is attached with an electronic control module for controlling the throttle valve and an throttle position sensor for detecting an opening degree of the throttle valve contiguous to each other, and terminals of said throttle position sensor are directed to a side of the  
10        electronic control module and connected to terminals of said electronic control module.

14. The motor driving type throttle apparatus according to Claim 13, wherein the inner face of said cover is formed with a blocking wall for partitioning between a containing  
15        space of said electronic control module and a containing space of said throttle position sensor, the blocking wall is provided with a notch , and one end on a terminal side of said throttle position sensor is fitted to said notch in an airtight state , thereby construct a structure in which gel filled in said  
20        electronic control module containing portion is prevented from flowing out.

15. The motor driving type throttle apparatus according to Claims 12, wherein said cover is integrally molded with connector portions for external connection of the electronic

control module.

16. The motor driving type throttle apparatus according to Claim 12,

wherein a resin mold constituting said cover has a group of  
5 lead frames for connecting to terminals of a circuit board of  
said electronic control module, these lead frames are embedded  
into said cover with an aligning arrangement, and ends of said  
lead frames on one side are exposed at positions contiguous  
to one side of an electronic control module containing portion  
10 at an inner face of said cover, and ends on other side of said  
lead frames constitute connector pins in a connector case of  
the connector portions for external connection.

17. A motor driving type throttle apparatus characterized  
in that an throttle position sensor for detecting an opening  
15 degree of a throttle valve is attached to an inner face of a  
resin cover for covering one end of a throttle valve shaft by  
a packaged unit style.

18. The motor driving type throttle apparatus according  
to Claim 17, wherein a unit of said throttle position sensor  
20 is provided with at least two pieces of positioning attaching  
holes.

19. The motor driving type throttle apparatus according  
to Claim 17, wherein said throttle position sensor is thermally  
fastened by welding a resin member provided at the cover.

20. A motor driving type throttle apparatus for controlling an opening degree of a throttle valve by using an electric actuator,

characterized in that a cover for covering one end side of the throttle valve shaft is attached to a side wall of a throttle body having said throttle valve,

an inner face of said cover is formed with a containing portion of a throttle position sensor for detecting an opening degree of the throttle valve, a containing portion of the electronic control module and an intermediary connector portion for connecting to motor terminals of the electronic actuator,

and an outer face of the cover is formed with a connector portion for external connection of said electronic control module.

21. The motor driving type throttle apparatus according to Claim 20, wherein the containing portion of the throttle position sensor is arranged on one side, and the intermediary connector portion is arranged on other side by interposing said containing portion of the electronic control module.

22. The motor driving type throttle apparatus according to Claim 20 ,

wherein the intermediary connector portion comprises a connector housing in a box-like shape integrally molded with

said cover and terminals for motor connection integrated with a resin mold of said connector housing on an inner side of said cover,

end portions of the terminals on a side opposed to a side  
5 connected with the motor terminals are exposed at an inner portion of said cover, and said exposed end portions are connected to power source output terminals provided at the electronic control module.

23. A motor driving type throttle apparatus for  
10 controlling an opening degree of a throttle valve by using an electric actuator,

characterized in that a cover for covering one end side of a throttle valve shaft is attached to a side wall of a throttle body having the throttle valve, and an inner face of said cover  
15 is attached with a throttle position sensor for detecting an opening degree of the throttle valve and an electronic control module for controlling the throttle valve;

that the throttle position sensor and the electronic control module are contiguous to each other and connected at  
20 a position contiguous thereto;

that said cover is provided with a connector portion for external connection of the electronic control module, ends of a group of lead frames constituting terminals of the connector portion are arranged to align along one side of an inner side



of said cover and connected to a group of terminals provided at said electronic control module; and

that a power source is supplied to said electric actuator via said connector portion for external connection, said electronic control module and intermediary connectors is provided to said cover.

24. A motor driving type throttle apparatus for controlling an opening degree of a throttle valve by using an electric actuator,

characterized in that a resin cover for covering one end side of a throttle valve shaft is attached to a side wall of a throttle body having the throttle valve, an electronic control module for controlling the throttle valve is attached with an inner face of the resin cover; and

that said electronic control module comprises a circuit board for control, a plate formed by an excellent thermally conductive material holding the circuit board and a module cover formed by an excellent thermally conductive material for covering the circuit board above the plate, said plate and said module cover are brought into contact together via a thermally conductive member, and said module cover is brought into contact with the throttle body formed by an excellent thermally conductive material via a thermally conductive member.

25. The motor driving type throttle apparatus according

to Claim 24, wherein the throttle body, the plate and the module cover are made of aluminum.